III.

Note to the Article "On the Theory of Flexure," at page 13 (*Vol.* II) *of this Journal.*

By William H. Burr, *Rensselaer Polytechnic Institute.*

From the somewhat speculative nature of the article on the Theory of Flexure, resulting from the absence of experimental data on the "viscosity" of materials, it may be permissible to consider constant the intensity of stress in any section of a bent beam along a line parallel to the neutral axis of that section. Various considerations seem to indicate such a condition of stress. It is evident that that condition would accompany the greatest imaginable resistance which the beam could offer to external bending forces.

In order to represent this case for any beam not rectangular in section, it will only be necessary to put, in equation (74) of the article in question, consistently with the notation used in equation (46), $f(y')$ for each z_1 found in the parenthesis, and $2dy'$ for b. The general value for the bending moment then becomes

$$M = 4\frac{N_0}{\log z_1}\int_1^{y_1}\left(\frac{1}{4}f(y')^2\log\frac{f(y')^2}{e} - f(y')\log\frac{f(y')}{e} - \frac{3}{4}\right)dy'.$$

The value, for a rectangular section, will not be changed.

Troy, N. Y., *18 July, 1879.*

IV.

Generalization of Leibnitz's Theorem in Statics.

Extract of a Letter from Professor Crofton, *Royal Military Academy, Woolwich, to* Professor Sylvester.

. . . . . A small remark occurred to me the other day, which, it seems to me, can hardly have escaped notice, but no one that I know has met it. It is an extension of Leibnitz's Theorem in Statics: "If any number of forces